UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/539,391	10/06/2006	Ratjika Chanamai	0101372/0532491	3600

26874 7590 12/01/2016

FROST BROWN TODD LLC
3300 Great American Tower
301 East Fourth Street
CINCINNATI, OH 45202

EXAMINER	
TURNER, FELICIA C	

ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
12/01/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@fbtlaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RATJIKA CHANAMAI

Appeal 2015-004257
Application 11/539,391
Technology Center 1700

Before TERRY J. OWENS, BEVERLY A. FRANKLIN, and JENNIFER R. GUPTA, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

The Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–5, 7, 9, 11–19, 34, 36, 37 and 40. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The Appellant claims a microemulsion composition and a method and concentrate for preparing the composition. Claim 1 is illustrative:

1. A composition used to incorporate lipophilic water-insoluble materials into food and beverage products, consisting essentially of:

(a) an oil phase comprising said water-insoluble material and a low HLB nonionic emulsifier having an HLB of from about 1 to about 5 selected from glycerol esters of fatty acids,

monoglycerides, diglycerides, ethoxylated monoglycerides, polyglycerol esters of fatty acids, sorbitan esters of fatty acids, sucrose esters of fatty acids, and mixtures thereof;

(b) an aqueous phase; and

(c) a food grade emulsifier system consisting of:

(i) a high HLB nonionic emulsifier having an HLB of from about 9 to about 17 selected from acetic acid esters of mono and diglycerides, lactic acid esters of mono and diglycerides, succinic acid esters of mono and diglycerides, diacetyl tartaric esters of mono and diglycerides, polyoxyethylenesorbitan esters, polyglycerol esters of fatty acids, sucrose esters of fatty acids, and mixtures thereof; and

(ii) a medium HLB nonionic emulsifier having an HLB of from about 6 to about 8 selected from monoglycerides, diglycerides, ethoxylated monoglycerides, sorbitan esters of fatty acids, phosphoric acid esters of mono and di-glycerides, polyglycerol esters of fatty acids, sucrose esters of fatty acids, and mixtures thereof;

wherein said oil phase is dispersed as particles having an average diameter of from about 1 to about 300 nm, within said aqueous phase; wherein said composition is a microemulsion, is transparent, thermodynamically stable, and has a low interfacial tension; and wherein said low, medium and high HLB emulsifiers act to form the microemulsion.

The References

Wolf	US 4,835,002	May 30, 1989
Van Den Braak	US 6,509,044 B2	Jan. 21, 2003
Corbella	US 2003/0220406 A1	Nov. 27, 2003
Constantinides	WO 94/08605 A1	Apr. 28, 1994

Jean-Louis Salager, *FIRP Booklet # E300-A, Surfactants Types and Uses* 1–49 (Laboratorio FIRP, Venezuela 2002) (hereinafter Salager).

Clyde E. Stauffer, *Chapter 8 - Emulsifiers for the Food Industry, in Bailey's Industrial Oil and Fat Products* 229–67 (6th ed., John Wiley & Sons 2005) (hereinafter Bailey).

The Rejections

The claims stand rejected under 35 U.S.C. § 103 as follows: claims 1–5, 7, 9, 11–15, 17–19, 34, 36, 37 and 40 over Constantinides in view of Wolf, Van Den Braak, Bailey and Salager, claim 16 over Constantinides in view of Wolf, Van Den Braak, Bailey, Salager and Corbella, claims 1–3, 5, 9, 11–14, 17 and 18 over Wolf in view of Constantinides, Van Den Braak and Bailey, and claim 16 over Wolf in view of Constantinides, Van Den Braak, Bailey and Corbella.[1]

OPINION

We reverse the rejections. We need address only the independent claims (1, 19 and 34). Oil-in-water microemulsion composition claim 1 and method claim 19 require a composition comprising an oil phase containing a water-insoluble material and a low (about 1 to about 5) hydrophilic-lipophilic balance (HLB) nonionic emulsifier, and a food grade emulsifier system consisting of a high (about 9 to about 17) HLB nonionic emulsifier and a medium (about 6 to about 8) HLB nonionic emulsifier. Oil-in-water microemulsion concentrate composition claim 34 requires about 1 to about 10 % of a food grade low (about 1 to about 5) HLB nonionic emulsifier, about 1 to about 10 % of a food grade medium (about 6 to about 8) HLB nonionic emulsifier, and about 65 to about 95 % of a food grade high (about 9 to about 17) HLB nonionic emulsifier.

[1] A rejection of claims 17, 18, 36 and 37 under 35 U.S.C. § 112, first paragraph is withdrawn in the Examiner's Answer (Ans. 19).

Constantinides discloses a water-in-oil emulsion comprising a low HLB surfactant-containing lipophilic phase and a high HLB surfactant (p. 5, ll. 3–13). The low HLB surfactant can be a blend of surfactants having HLB values of about 2.5 to 6 (which includes values within the Appellant's low and medium HLB emulsifier HLB ranges) (p. 7, ll. 25–28; p. 8, ll. 24–27). "Suitably, the blend of low and high HLB surfactants will have an HLB value in the range of from about 7 to about 15" (p. 9, ll. 8–9).

In the rejection in which Constantinides is the primary reference, the Examiner relies upon Wolf (col. 5, ll. 30–34) only as evidence that Constantinides's polyoxyethylene-sorbitan fatty acid esters (polysorbates) (p. 8, ll. 29–34) are nonionic and can be high HLB or low HLB surfactants (Ans. 3).

The Examiner relies upon Van Den Braak for a disclosure of sucrose stearate as an emulsifier (col. 6, l. 50) which, the Examiner finds, is a medium HLB emulsifier (Ans. 3–4).[2] The Appellant provides evidence that sucrose stearates can have HLB values from about 1 to about 16 and, therefore, can be low HLB, medium HLB or high HLB emulsifiers (App. Br. 10–11). In response, the Examiner points out that Van Den Braak's claim 1 recites an emulsifier mixture comprising a primary surfactant and a lower-HLB cosurfactant and having an HLB of 10 to 18 (Ans. 21), and finds that "Van Den Braak does steer the sucrose stearate to be a medium HLB emulsifier since it discloses sucrose stearate as a co-

[2] The Examiner finds that Van Den Braak "discloses the suitability of tertiary microemulsions having low HLB, possible medium HLB, and high HLB surfactants [col. 3, lines 6-13]" (Ans. 4), but the Examiner provides no explanation as to how that portion of Van Den Braak discloses or would have suggested, to one of ordinary skill in the art, such a combination.

surfactant and that the co-surfactant has a lower HLB than the primary surfactant and that the blend of primary and co-surfactant has an HLB of 10 to 18" (Ans. 23).

Van Den Braak discloses high HLB emulsifiers having a preferred HLB of 12–16, most preferably 15, and discloses suitable emulsifier mixture components but not their HLB values (col. 2, l. 65 – col. 3, l. 13). Van Den Braak's emulsion mixture HLB values below 12 appear to be achievable by combining emulsifiers having HLB values below the preferred range. The Examiner does not point out in Van Den Braak a disclosure which would have suggested, to one of ordinary skill in the art, including a medium HLB emulsifier in the mixture.

Bailey discloses that surfactants having HLBs of 8–10 are not good emulsion stabilizers but are good wetting agents (pp. 239, 243).

The Examiner finds that Bailey discloses that "[t]he addition of a medium HLB allows the dispersion of water on a solid surface e.g. wetting solid cocoa particles [pg. 244]" (Ans. 4).

That portion of Bailey discloses that "[t]he addition of lecithin aids the wetting of solid cocoa particles by this oil [cocoa butter]". The Examiner does not establish that this disclosure would have led one of ordinary skill in the art to include a medium HLB surfactant in Constantinides's surfactant mixture.[3]

In the rejections wherein Wolf is the primary reference, the Examiner finds that Wolf discloses a microemulsion which "can contain one or more lipophilic surfactants and one or more hydrophilic surfactants [col. 6,

[3] The Examiner relies upon Salager only for a disclosure of advantages of nonionic surfactants relative to cationic and ionic surfactants (Ans. 4).

lines 10-15]" (Ans. 12), "lipophilic surfactants have HLB values of 2 to 6 [col. 7, lines 30-33]" (*id.*), and "the hydrophilic surfactants have HLB values of 6 to 20 [col. 7, lines 34-35]" (Ans. 12–13).

Those portions of Wolf disclose:

> The combination of surfactants that may be used in this regard would thus include
>
> (a) one or more hydrophilic surfactants
>
> (b) one or more lipophilic and one or more hydrophilic surfactants
>
> (c) one or more amphoteric surfactants, alone, or with an (a) or (b) set of surfactants. [col. 6, ll. 10–16]
>
> . . . .
>
> A preferred commercial method for forming the microemulsions is to:
>
> (a) separately dissolve a lipophilic surfactant i.e., one having a HLB value of about 2 to 6, in the oil,
>
> (b) separately dissolve a hydrophilic surfactant i.e., one having a HLB value of about 6 to 20, in the water,
>
> (c) then mix (a) and (b), and then
>
> (d) add enough of the alcohol [col. 4, ll. 11–22] to achieve the microemulsion stage, as evidenced by the clarity, to the naked eye, of the resulting system. Prior to the addition of the full amount of alcohol needed to achieve such clarity, the mixture of (a) and (b) will have a cloudy or turbid appearance. [col. 7, ll. 30–42]

The Appellant argues that the term "consisting of" in claim 1 excludes Wolf's alcohol from the food grade emulsifier system (App. Br. 16). The Examiner responds that "the polyol in Wolf could have been considered to be a part of the 'aqueous phase' in the formation of a microemulsion" (Ans. 27).

The Appellant's claim term "consisting of" limits the food grade emulsifier system to its recited components. *See Mannesmann Demag Corp.*

v. Engineered Metal Prod., 793 F.2d 1279, 1282 (Fed. Cir. 1986) ("The district court correctly observed that the phrase 'consisting of' appears in clause (a), not the preamble of the claim, and thus limits only the element set forth in clause (a)."). Wolf's disclosure that the mixture remains cloudy or turbid until a sufficient amount of alcohol has been added to the mixture (col. 7, ll. 39–42) indicates that the alcohol is part of the emulsifier system and, therefore, is excluded by the Appellant's "consisting of" claim term.

Thus, the record indicates that the rejections are based upon impermissible hindsight in view of the Appellant's disclosure. *See In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967) ("A rejection based on section 103 clearly must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art"). Accordingly, we reverse the rejections.

DECISION/ORDER

The rejections under 35 U.S.C. § 103 of claims 1–5, 7, 9, 11–15, 17–19, 34, 36, 37 and 40 over Constantinides in view of Wolf, Van Den Braak, Bailey and Salager, claim 16 over Constantinides in view of Wolf, Van Den Braak, Bailey, Salager and Corbella, claims 1–3, 5, 9, 11–14, 17 and 18 over Wolf in view of Constantinides, Van Den Braak and Bailey, and claim 16 over Wolf in view of Constantinides, Van Den Braak, Bailey and Corbella are reversed.

It is ordered that the Examiner's decision is reversed.

REVERSED